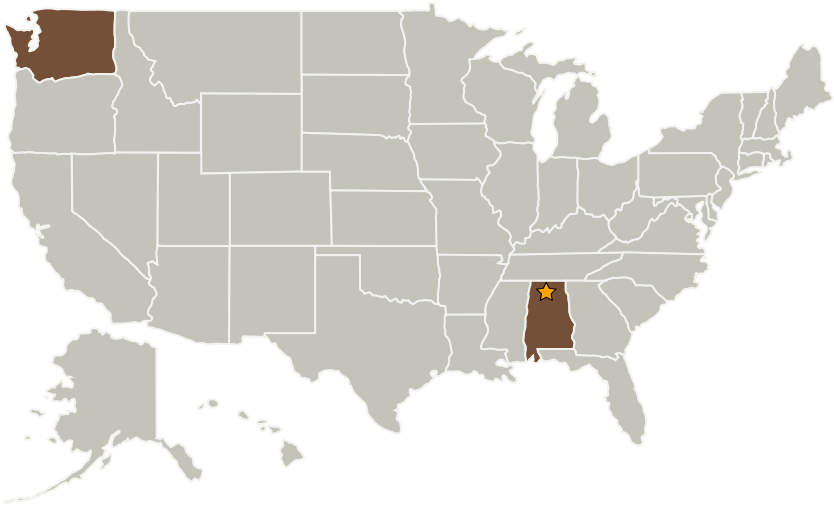
Collaborative Object Framework for Adaptive System Optimization, Phase II

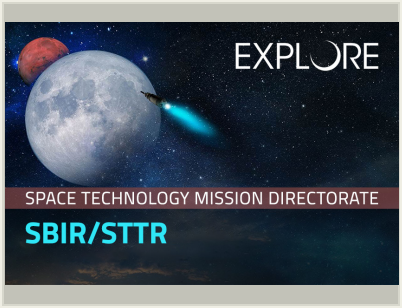
Completed Technology Project (2005 - 2006)

Project Introduction

The proposed innovation is to combine traditional and cutting edge optimization techniques into an existing powerful object based organic enterprise decision network called FrameworkCT. This combination would represent not only a leap in the field of optimization itself but also in the methods by which these models are produced for optimization process in the first place. This will be the first time ever that (i) multidisciplinary model integration, (ii) distributed parallel processing, (iii) statistical simulation, and (iv) optimization algorithms will be put together to solve complex systems engineering optimization problems. In our Phase I research we have not only demonstrate the feasibility of the proposed innovation but in our preliminary tests we uncovered important synergies between the existing neural network database foundation of FrameworkCT and neural network optimization as well as between the current massive parallel processing capability and genetic optimization algorithms. Or overall effort is closely aligned with NASA's new initiative of going back to the moon, mars and beyond. This alignment with a current enterprise decision system will help insure the ultimate usefulness of the proposed innovation to NASA as well as industry and result in a tangible benefit during and immediately following the conclusion of the project.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Marshall Space Flight Center(MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
TeamVision Inc	Supporting Organization	Industry	Federal Way, Washington

Primary U.S. Work Locations	
Alabama	Washington

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.5 Mission Architecture, Systems Analysis and Concept Development
    - TX11.5.2 Tools and Methodologies for Performing Systems Analysis